

Claims.

1. Method for restarting a three-phase synchronous permanent magnet electric motor having its rotor still at rotation, wherein the motor is connected to a drive unit having a DC-stage with a voltage measuring means, a variable voltage and frequency output stage having power switching devices, and a means for determining the current in at least two of the output phases from said drive unit,

comprising
b ~~characterized by the following measures:~~

- 1) short-circuiting momentarily the motor with said output stage,
II) detecting during said short-circuiting moment the current magnitudes generated by the motor in at least two of the motor phases,
III) calculating during said short-circuiting moment the phase angle generated by the motor,
IV) determining the rotor speed and position,
V) synchronizing the drive unit with the rotor, and
VI) restarting the motor.

2. Method according to claim 1, wherein the voltage amplitude generated by the motor is calculated.

a 3. Method according to claim 1 ~~or 2~~, wherein the motor with said output stage of said drive unit is momentarily short-circuited at two or more occasions at certain time intervals, and the current magnitude values measured at each short-circuiting occasion is compared to those measured at another short-circuiting occasion or occasions to determine the difference in phase angle obtained during said certain time interval or intervals and, hence, the actual rotor speed.

a 4. Method according to claim 1 ~~or 2~~, wherein the duration of said short-circuiting moment is chosen so as to obtain a

7

magnitude of the current generated by the motor having an amplitude high enough to give ^a ~~an~~ favourable current measurement accuracy.

5. Method according to claim 1, wherein said means for determining the current in at least two of the output phases of said drive unit is connected directly to the motor phases.

6. Method according to claim 1, wherein said means for determining the current in at least two of the output phases of said drive unit is connected to said power switching devices.

7. Method according to claim 1, wherein said means for determining the current in at least two of the output phases of said drive unit is connected to said DC-stage.

8